THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 33. AUGUST 17, 1946 VOL. 58.

The Diagnostic Value of the Blood Leucocyte Picture in Traumatic Reticulitis and Pericarditis of Bovines

G. H. ARTHUR

SCHOOL OF VETERINARY SCIENCE, UNIVERSITY OF LIVERPOOL

The diagnosis of traumatic reticulitis is often a difficult matter. Yet if surgical interference for relief of the condition is to be successful, early diagnosis is essential. The variety of symptoms associated with it are well recognized and have been described at length by Udall (1933). While the majority of such cases present a fairly typical history and syndrome, a considerable number are atypical, and it is in these latter that a certain diagnosis cannot be made. Dougherty (1939) was impressed by the inadequacy of the methods available for the diagnosis of this affection and stressed the need for some supplementary laboratory test. He therefore studied the symptoms and blood changes in three cattle in which traumatic reticulitis was induced by inserting a piece of wire, *via* a rumenal fistula, through the anterior reticular wall. Changes in the blood picture were present four to six hours after insertion of the foreign body. These changes comprised an increase in total white cell count, an increase in neutrophiles, particularly the immature forms, and a relative decrease in lymphocytes. In addition, blood examinations were made of 30 suspected cases of reticulitis. In all but one of the positive cases, the blood changes corroborated the clinical findings. The conclusion reached was that a study of the blood picture was a definite aid in the diagnosis of traumatic reticulitis and pericarditis when taken in conjunction with clinical observations. The present writer has investigated the blood leucocyte picture in cases of traumatic reticulitis, pericarditis and a number of other affections having some clinical resemblance to them. The purpose of this report is to confirm and amplify the findings of Dougherty.

ANIMALS USED

The 25 animals studied were admitted to the Field Station of the School either as suspected cases of penetrating reticular foreign body or as cases for diagnosis. They varied in age from two to nine years, but the majority were young cattle. Four were maiden heifers, four were carrying their first calves, one was a non-pregnant and non-lactating cow and the remainder were recently calved cows.

In ten, a diagnosis of traumatic reticulitis was made and rumenotomy was performed for the relief of the condition. Five others were diagnosed as cases of traumatic pericarditis. In all 15 the diagnosis was verified at operation or *post-mortem* examination.

In ten others in which the clinical picture bore a resemblance to that of reticulitis the blood picture was also studied. These included three cases of tuberculosis, two of Johne's disease, one of fascioliasis, one of acetonaemia and three of actinobacillosis.

TECHNIQUE OF BLOOD EXAMINATION

Blood was drawn from the mammary vein in some cases a few minutes, in others several hours, before operation. From this sample two smears were made at once by means of a narrower "spreader" slide. Freshly drawn blood was diluted by means of a Piney pipette, and leucocytes lying in four areas, each of 1 sq. mm., were counted.

For differential counts two separate hundreds of leucocytes were counted and differentiated and where marked discrepancy occurred between these two counts, a third or even a fourth hundred cells were examined. Basophile cells, although occasionally present in small numbers, were ignored during the investigation.

A total leucocyte count was made from the diluted blood by means of a Türck haemocytometer. The technique of blood examination employed for total and differential leucocyte counts was that described by Holman (1944).

RESULTS OBTAINED

The total and differential leucocyte counts of the ten animals affected with traumatic reticulitis are shown in Table I. The average counts have been calculated and these are compared with the normal values. Unsegmented neutrophiles were taken to include occasional myelocytes, metamyelocytes and neutrophiles in which the nuclear material was not aggregated. "Polys" included neutrophiles in which partial or complete segmentation of the nucleus was visible. The "normal" values were those obtained by the writer from an examination of the bloods of a number of normal mature cattle.

Comparable findings from the five cases of traumatic pericarditis are shown in Table II. The results have again been averaged and compared with the normal values.

Table III shows the blood pictures of the ten other related cases.

TABLE I: TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN TRAUMATIC RETICULO-PERITONITIS

Identification	Total leucocytes per c.mm.	Neutrophiles		Lymphocytes	Monocytes	Eosinophiles
		Unsegm.	Polys.			
299	8,500	27·0	35·5	28·0	9·0	0·5
208	8,900	15·0	39·5	38·5	2·0	5·0
223	16,100	17·0	47·0	34·0	0·0	2·0
245	8,900	10·0	29·5	55·0	3·5	2·0
212	12,000	15·0	38·0	41·0	2·0	4·0
214	10,000	25·0	42·0	31·0	1·0	1·0
207	10,950	8·0	34·0	56·0	1·0	1·0
161P	7,300	38·0	8·0	44·0	4·0	6·0
267	9,800	25·5	34·5	36·5	3·5	0·0
337	8,850	14·0	34·5	39·0	3·5	9·0
Average ..	10,130	19·5	34·2	40·3	2·9	3·1
Normal ..	8,000	2·0	28·0	54·0	6·0	10·0

TABLE II: TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN TRAUMATIC PERICARDITIS

Identification	Total leucocytes per c.mm.	Neutrophiles		Lymphocytes	Monocytes	Eosinophiles
		Unsegm.	Polys.			
263	17,850	36·5	36·5	25·0	1·0	1·0
189	25,200	66·0	14·0	20·0	0·0	0·0
250	31,000	22·0	55·0	15·0	0·0	8·0
16	22,000	65·0	15·0	18·0	2·0	0·0
338	21,200	40·0	41·0	18·0	1·0	0·0
Average ..	23,450	45·9	32·3	19·2	0·8	1·8
Normal ..	8,000	2·0	28·0	54·0	6·0	10·0

TABLE III: TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN SOME CLINICALLY SIMILAR CONDITIONS

Condition	Identification	Total leucocytes	Neutrophiles		Lymphocytes	Monocytes	Eosinophiles
			Unsegm.	Polys.			
Actinobacillosis	15	10,100	0·0	38·0	46·0	4·0	12·0
"	16	8,500	6·0	25·0	53·0	11·0	5·0
"	17	8,200	0·0	30·0	55·0	5·0	10·0
Clinical TB. ..	18	—	0·0	23·0	74·0	1·0	2·0
" ..	19	11,600	15·5	11·0	62·0	11·0	0·5
" ..	20	10,000	0·0	23·0	49·5	15·0	12·5
Liver fluke ..	21	7,800	2·0	28·0	52·0	3·0	15·0
Johne's ..	22	10,800	5·5	32·0	49·0	4·0	9·5
" ..	23	5,050	1·0	26·0	60·5	2·5	10·0
Acetonaemia ..	30	4,475	2·5	20·5	57·5	7·0	12·5

1. TRAUMATIC RETICULITIS

(*a*) Total leucocyte count. The average total leucocyte count for the ten cases studied was 10,130 as compared with a normal value of 8,000. (All figures of total counts refer to number of leucocytes per cubic millimetre of blood.) If the count of 16,100 for case No. 223 is excluded the average for the remaining nine cases becomes 9,467. This can hardly be regarded as a significant leucocytosis. It is, in fact, questionable whether case No. 223 should be classed as one of reticulo-peritonitis because, although

signs of pericardial involvement were not obvious at the time of operation the attending veterinary surgeon reported that typical symptoms of pericarditis with effusion developed nine days after a piece of wire was removed from the anterior reticular wall. It is probable, then, that commencing pericarditis was present at the time of operation. One other animal, case No. 212, showed a leucocytosis of 12,000 but made a good recovery without subsequent heart involvement.

(*b*) Differential leucocyte count. If the average for the ten differential counts shown in Table I is compared with the normal values, it will be seen that marked changes occur in the blood of the affected, and that the most striking of these is in the neutrophiles. The average neutrophile percentage is increased from 30 to 53·7, and this increase is due very largely to the appearance of immature neutrophiles in the circulating blood. In other words, there is a pronounced relative neutrophilia with a marked shift to the left. Individually all the affected animals show these changes but in varying degree.

Lymphocyte and monocyte percentages are correspondingly decreased to 40·3 and 2·9 respectively. This gives rise to a tendency for the normal lymphocyte-neutrophile ratio to become reversed.

The average eosinophile percentage for the affected shows a marked drop from a normal of 10 to 3·1 in reticulitis. In two cases, *viz.* Nos. 299 and 267, no eosinophiles were seen in differentiating one hundred white cells. In all, six of the bloods showed an eosinophile level which falls well below the average for normal adult cattle.

It will be observed that this neutrophilia with eosinopenia occurred in the absence of leucocytosis, and this suggests that the reaction had entered the "defence phase" as laid down by Schilling (1929) in human haematology.

2. Traumatic Pericarditis

(*a*) Total leucocyte count. In the five cases studied the average total leucocyte count (Table II) was 23,450—a very marked leucocytosis. This leucocytosis is shown by all five individuals and case No. 250 showed a figure of 31,000. This is the highest total white cell count observed by the writer in bovines. The marked difference in total leucocyte count between the case of traumatic reticulitis and that of pericarditis was one of the most striking features of this study.

(*b*) Differential leucocyte count. Comparison of the average with the normal in Table II shows that neutrophilia is very marked—78·2 per cent.—and far exceeds that (53·7) noted in reticulitis. In addition, the shift to the left is much greater and the percentage of bands far outnumbers that of the polys.

Lymphocytes and monocytes are correspondingly decreased in numbers.

Eosinopenia, *viz.* 1·8 per cent., is also more severe than in reticulitis. Three of the cases showed no eosinophiles in 200 white cells.

Thus the blood picture in these cases represents Schilling's "invasion phase," while the very marked shift to the left indicates the serious nature of the reaction.

It is remarkable that case No. 250, the animal with the greatest leucocytosis, should show an eosinophile percentage of eight. The subject was a two-year-old Friesian heifer, pregnant four months. It was admitted to hospital as an advanced case of pericarditis with effusion. Pericardotomy confirmed the diagnosis but failed to locate the foreign body. After operation the patient did surprisingly well and continued to eat and ruminate for nearly two weeks, when there was a fairly sudden deterioration and death. Resistance was correlated with eosinophile count in this case.

3. Some Clinically Related Conditions

Cases of tuberculosis of the pleura and peritoneum may present a similar syndrome to traumatic reticulitis. The bloods of three such cases of bovine tuberculosis are shown in Table III. In these the lymphocyte-monocyte total was raised as compared with normal and the neutrophile percentage decreased. This is the opposite tendency to that noted in reticulitis and is in agreement with the work of Fraser (1930) who found a similar blood picture in some cases of clinical tuberculosis.

It was noteworthy that among the cases admitted as suspected reticulitis, three were subsequently shown to be Johne's disease and the blood pictures of two advanced cases were studied. Apart from a leucopenia in one, the values were little altered from normal.

The clinical syndrome of cases of bovine hypoglycaemic ketosis often resembles closely that of traumatic reticulitis and the frequency with which both are encountered in recently calved animals adds to confusion. The diagnosis of acetonaemia is usually easy but occasionally subjects of traumatic reticulitis give a positive reaction to Rothera's test. The blood picture of one well-marked case of acetonaemia is shown in Table III. The only variation from normal is a low leucocyte count of only 4,475.

One case of suspected reticulitis encountered was later proved to be liver fluke infestation. Its blood values are all within the normal range.

The Actinobacillus lignieresi occasionally attacks serous membranes and sometimes the reticular wall of cattle. Although no such cases were met during the course of this study, it was thought that an examination of the blood of three cases of actinobacillosis of the tongue and palate might be of comparable interest. The blood pictures of these are shown in Table III. It will be seen that no significant changes occurred in either the total or differential leucocyte counts. It is, of course, possible that where more extensive lesions of this disease are present in the thoracic or abdominal cavities changes in the blood picture might occur.

Discussion

Although not pathognomonic, for similar blood pictures can arise from several other causes including infection with *C. pyogenes* (unpublished work), it is contended that a haemogram can help to differentiate between traumatic reticulitis and some other diseases showing similar symptoms, also the total leucocyte count appears of value in distinguishing between traumatic reticulitis and pericarditis and thus can be used as a guide to the urgency of the condition with regard to surgical interference.

Summary

The blood leucocyte picture was studied in ten cases of reticulitis, five cases of pericarditis and in ten affections clinically similar to reticulitis.

In traumatic reticulitis the leucocyte count varied between 7,300 and 12,000 per c.mm. (with one exception which is discussed), and unsegmented neutrophiles varied from eight to 38 per cent of the differential count.

In traumatic pericarditis the leucocyte count varied between 17,850 and 31,000 per c.mm. and unsegmented neutrophiles varied from 22 to 66 per cent. of the differential count.

Out of ten cases of other diseases in which the symptoms resembled traumatic reticulitis nine cases showed no neutrophilic reaction and could be differentiated on that account, and the tenth case (one of clinical tuberculosis) had a lymphocyte percentage of 62 which was higher than any in the reticulitis groups.

It was concluded that a study of the blood leucocyte picture was of diagnostic and prognostic value in reticulitis and pericarditis.

Acknowledgments.—Thanks are due to Professor J. G. Wright for his interest and encouragement in this work and for reporting on the findings in the cases on which he operated.

References

Dougherty, R. W. (1939.) *J. Amer. vet. med. Ass.* **94.** 357–362.
Fraser, A. C. (1929-30.) "A Study of the Blood of Cattle and Sheep in Health and Disease." 1*st Rep. Inst. An. Path.* Cambridge. pp. 114–204.
Holman, H. H. (1944.) Chapter on Haematology, "Diagnostic Methods in Veterinary Medicine," by Boddie, G. F., Edinburgh: Oliver & Boyd.
Schilling, V. (1929.) "The Blood Picture." Trans. by Gradwohl, R. B. H. London: Kimpton.
Udall, D. H. (1933.) "The Practice of Veterinary Medicine." New York: Udall.

THE NATIONAL HORSE ASSOCIATION

The July issue of the *News Sheet* issued quarterly by the National Horse Association of Great Britain records much useful activity in promoting the interests of the horse and its owner. At the July meeting of Council the election of 212 candidates brought the membership to 2,901. It was reported that 1,729 persons had attended the five lecture-demonstrations at the Hyde Park Barracks this spring. A long discussion took place regarding the programme for future lectures, which it was hoped to recommence in September. The Parliamentary agent referred to various suggestions which he understood had been made to the authorities regarding restrictions on the use of horses in London and other large cities. Any restrictions would be very detrimental to horse owners, and it was resolved to write to Horse Societies, firms and others interested, so that the Association might be in full possession of their views and ideas should any restrictions be contemplated.

Good progress by the numerous breed societies is a feature of the reports published in this issue, while a welcome decision has been taken to devote more space in future issues to news of interest to the owner of the commercial horse.

The Control of Enterotoxaemia in Fattening Sheep by a Single Inoculation with Cl. welchii, Type D, Anaculture

D. W. P. BYTHELL and W. H. PARKER

Harper Adams Agricultural College

Introduction

Throughout each winter during the last four years we have had occasion to investigate losses among arable sheep in Shropshire. The mortality occurs in both home-bred and purchased hoggs, principally after the flock has become folded on such crops as turnips, swedes, rape, kale and, especially, on sugar beet tops. It is said to be particularly severe during spells of mild wet weather such as occur often in November. Mortality on the affected farms varies from one year to another, but an incidence of up to 8 per cent. in a bad season is not uncommon, while an average loss of 4 per cent. to 5 per cent. is found on several farms. The disease is confined almost entirely to sheep in good condition—a fact well recognized by the farmers. Death is invariably sudden, often in the night and associated with prostration and struggling. *Post-mortem* examination of typical cases has regularly suggested enterotoxaemia and the presence of the toxin of *Cl. welchii*, Type D, has frequently been demonstrated in the contents of the small intestine. This organism has been cultured with regularity from such specimens.

That this enterotoxaemia is closely associated with flock management is accepted and when several cases of sudden death occur in a flock within a few days, further loss can often be prevented by moving the sheep to a poor pasture. This method of prevention does, however, involve loss by reducing the condition of the whole flock. In 1944 it was decided to observe the value of vaccine as a prophylactic. Unfortunately, losses were light in 1944-45; only 22 sheep died out of a total of 3,022 in the trial, and no conclusion could be drawn. It was decided to lay down a second field experiment in the autumn of 1945, using a single inoculation with anaculture as in the previous year.

Vaccination Trial

Thirteen farms, on which enterotoxaemia was believed to occur, or on which the disease had been shown to exist in previous years, were chosen. In these flocks, 2,010 sheep were inoculated subcutaneously with 5 c.c. *Cl. welchii*, Type D, anaculture during October, 1945, leaving 2,040 sheep as controls. The vaccinated sheep were chosen at random and were identified by a punch in the left ear. The number of vaccinated and of control sheep in each flock was approximately equal. Arrangements were made to visit each farm immediately the first death occurred, and on that occasion the owner was instructed how to obtain and despatch the specimens required for laboratory examination. On certain farms a number of "struck-" sheep were taken for casualty slaughter and material from such animals was collected at the slaughterhouse as the carcase was dressed. All specimens were identified as coming from vaccinated or control sheep.

Examination of *Post-mortem* Material

A short length of intestine containing not less than two fluid ounces of ingesta was despatched to us for investigation. A small quantity of ingesta was seeded into an anaerobic meat broth and incubated at 37° C. for varying periods. 30 c.c. of the remaining material was then centrifuged and the supernatant fluid so obtained was filtered through a Seitz filter. Mice were injected with this filtrate and, if it proved toxic, the possibility of neutralizing this toxicity with *Cl. welchii*, Type D, antiserum was investigated. Only where the presence of this toxin could not be demonstrated in intestinal contents filtrate was the culture investigated. Unless epsilon toxin could be demonstrated in filtrates of these cultures, the death was accepted as not being due to enterotoxaemia.

Results

The experiment was terminated on March 31st, 1946, up to which time material from 44 sheep was submitted for examination. The result of the examination of *post-mortem* material is recorded in Table I.

The mortality reached a peak in November in which month 21 out of the 44 deaths occurred and the distribution of these deaths throughout the trial is recorded in Table II.

Table I.—Distribution of Deaths on the Individual Farms among the Vaccinated and Control Sheep

Farm ..	A	B	C	D	E	F	G	H	I	J	K	L	M	Total
No. of sheep vaccinated	184	80	156	263	208	246	126	215	127	99	40	175	91	2,010
Deaths due to enterotoxaemia ..	1	–	–	1	–	–	–	–	–	–	–	–	–	2
Deaths in which no toxin was demonstrable ..	–	1	–	1	2	–	–	–	1	–	–	3	1	9
No. of control sheep ..	184	78	156	263	207	249	144	221	127	103	40	177	91	2,040
Deaths due to enterotoxaemia ..	1	6	–	5	1	1	–	1	–	–	–	3	3	21
Deaths in which no toxin was demonstrable ..	–	1	–	4	4	1	–	–	–	–	–	–	2	12

Table II.—Monthly Incidence and Distribution of Total Deaths on the Various Farms During the Trial

Farm ..	A	B	C	D	E	F	G	H	I	J	K	L	M	To al
Oct. ..	–	1	–	4	–	–	–	–	1	–	–	–	–	6
Nov. ..	2	1	–	4	6	2	–	–	–	–	–	2	4	21
Dec. ..	–	4	–	1	–	–	–	–	–	–	–	1	–	6
Jan. ..	–	2	–	–	–	–	–	1	–	–	–	1	1	5
Feb. ..	–	1	–	–	1	–	–	–	–	–	–	2	1	5
Mar. ..	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Total ..	2	9	0	10	7	2	0	1	1	0	0	6	6	44

Table III.—Monthly Incidence of Total Deaths, Showing Number of Confirmed Cases of Enterotoxaemia

	Vaccinated		Controls	
	Enterotoxaemia confirmed	Enterotoxaemia not confirmed	Enterotoxaemia confirmed	Enterotoxaemia not confirmed
Oct. ..	1	2	3	0
Nov. ..	1	5	6	9
Dec. ..	–	1	5	1
Jan. ..	–	–	4	–
Feb. ..	–	1	3	1
Mar. ..	–	–	–	1
Total ..	2	9	21	12

DISCUSSION

The total death rate for all sheep in the trial (1·09 per cent.) was lower than was anticipated, even allowing for any protection afforded by vaccination. It was found at the end of the trial that several deaths among the control sheep on two farms had not been reported owing to a misunderstanding. Another factor which may have reduced the incidence of enterotoxaemia was the presence of chronic parasitic gastro-enteritis, notably in flocks C, E, F and G, where there were many unthrifty and undersized sheep, and these probably failed to reach the over-fat condition which renders them so liable to "strike." Table I shows that, the total death rate was 11 (0·55 per cent.) in the vaccinated group and 33 (1·62 per cent.) in the control group. Among the vaccinated sheep there were two deaths accepted as due to enterotoxaemia and 21 such deaths among the controls. These figures show that a significant protection was given by the vaccine to the immunized group as a whole and particularly in the case of flocks B, D and M. That the *post-mortem* material was obtained by the farmer without supervision must suggest the possibility that a number of the specimens were not representative, and this may conceivably have rendered the demonstration of toxin more difficult. There is, however, a significant difference between the mortality in the vaccinated and control groups, sufficient to show that vaccination will, to some extent, control enterotoxaemia on these farms and, at the present time, is an economic proposition.

There is evidence that a single inoculation with anaculture gives an adequate protection throughout the winter. Table III shows that there was no falling off in the immunity of the vaccinated sheep, only two of which died during the last four months of the trial compared with 15 control deaths during the same period.

The possibility that some of the cases of sudden death are due

to other causes than enterotoxaemia will form a subject for further investigation on one or two of the farms in the trial; in particular where losses are associated with folding on sugar beet tops. During the early part of the winter beet tops form one of the staple foods for sheep on these arable farms and it may be that feeding tops which are heavily contaminated with soil is a more important factor than the diet itself, especially during wet weather, although in the past, the oxalic acid content of beet tops has been blamed for many deaths among folded sheep.

Summary

A trial of *Cl. welchii*, Type D, anaculture in the control of enterotoxaemia is described, involving 4,050 sheep on 13 farms. The total death rate was 0·55 per cent. of the vaccinated sheep and 1·62 per cent. of the control sheep. *Cl. welchii*, Type D, toxin was demonstrated in two out of eleven deaths in the former group and in 21 out of 33 deaths in the latter.

The results show that a significant level of protection was obtained by vaccination in the trial as a whole, and that on several of the individual farms vaccination can be justified.

Acknowledgments.—We should like to offer our grateful thanks to Dr. R. F. Montgomerie and Mr. A. Thompson, of the Wellcome Physiological Research Laboratories, for their helpful guidance and for arranging the supply of vaccine. We also record our thanks to our colleague, Mr. F. J. Dudley, for his help in the statistical interpretation of the results, and to Mr. W. L. Dwerryhouse, Bridgnorth, for his willing co-operation.

A Charter for Milk Production

J. HUNTER SMITH

[We reproduce below a "Charter for Milk Production," embracing 25 points that he claims are essential to the future success of the industry, prepared by Mr. J. Hunter Smith, Principal of the Hertfordshire Institute of Agriculture, for *The Home Farmer* and published in the June, 1946, issue of that journal, which is the official organ of the Milk Marketing Board.]

The following notes are a frank exposure of the problems and difficulties that beset many thousands of milk producers in this country. Without doubt there is a nucleus of producers to whom most of the statements that follow have little or no direct application; they are fortunate in being able to maintain high standards of efficiency. It is equally true, however, that such standards are unattainable by the majority. To help them is the purpose of this article. They include many young farmers who are eager to break the bonds that bind them to never-ending drudgery, and who are eager to produce milk in a manner and under conditions that offer scope for initiative. To them the following outline of a Charter for Milk Producers may bring hope for the future. This Charter may also stir the imagination of breeders and those in authority and lead to positive and speedy action to remove the causes of inefficiency which impede progress.

(*i*) 20,000 *cottages on dairy farms in five years.*

(*ii*) *Blue prints of modern easily constructed farm buildings including cowsheds and dairies, approved nationally so that local builders may start work on them without delay.*

(*iii*) *Water laid on in every field, cowshed, dairy, farmhouse and cottage with the minimum delay.*

(*iv*) *Electricity for at least half our dairy farms, cowsheds and farm houses within five years, and for the remainder within ten years.*

(*v*) *Reasonable conditions of employment: training schemes for recruits: agricultural education for prospective farmers and stockmen: short refresher courses.*

Health

Is it true that about 10 per cent. of the calvings in our herds are premature, that sterility results in serious losses, that about 40 per cent. of our cows would react to the tuberculin test and that garget or mastitis, clinical or latent, is widespread? If so, these are serious problems. They lower standards of management, play tricks with milk records, shorten the useful life of the dairy cow and throw breeding policies into confusion. In addition, the public is deprived of large quantities of milk and workers on dairy farms live in an atmosphere of disillusionment, apathy and despair.

(*vi*) *An extension of the existing scheme for the control of diseases of dairy cattle.*

(*vii*) *Compulsory vaccination against abortion.* (*Free.*)

(*viii*) *Extended research into mastitis, together with* effective *advice on prevention.*

(*ix*) *A special scheme, under unified control, to eliminate tuberculosis from all dairy herds* (*see xviii*).

Only on a basis of health can standards of management be substantially improved or the breeding of dairy stock be placed on a sound basis.

Management

Let there be no mistake—all plans to obtain greater efficiency in the daily management of dairy cows must concentrate first and foremost on reduction of labour. This applies in the fields as in the cowsheds and dairies. Hay is the mainstay of milk production. Can we look forward to the day when a one-man pick-up hay baler, produced in Britain and at a cost within the reach of working farmers or local contractors, will be available? Assuredly our present system of sowing, singling and handling swedes, mangolds and kale is obsolete. Crops like maize and lucerne fit the circumstances in other countries. The choice is clear—mechanize the old familiar roots or breed and improve new crops to take their place. Neither of these suggestions is impossible. We have Askham Bryan (it would be better if there were two centres actively engaged in designing and testing new machines) where plans are being evolved for the future and we certainly have plenty of highly skilled plant breeders.

In new and remodelled farm buildings, every kind of useful labour-saving device should be installed. Great changes may be expected in methods of handling dung, grain, fodder and feeding-stuffs. Water on tap in fields and sheds is, like electricity, not a luxury but a necessity. Even the familiar milk cooler of to-day may have to give place to immersion tanks if that method is more economical in labour.

(*x*) *A national drive to encourage the native genius of our race and to bridge the chasm between inventor and manufacturer.*

(*xi*) *Mass production of labour-saving devices and standardization of spare parts.*

(*xii*) *Extension of milk recording closely associated with "advice" on the daily use of records.*

From another angle (see xii above) the use of milk records is a most valuable aid to the efficient management of a dairy herd. But note the words "the use of milk records," for milk recording is not an end in itself. It should be undertaken not so much to detect low-yielding cows as (*a*) to control the daily feeding of the cows and (*b*) to create interest in milking proficiency, in controlling matings for winter milk and to provide a basis for encouraging good work by suitable bonuses.

Breeding

Here again the importance of milk recording cannot be over-emphasized. There must, however, be complete confidence in the system of collecting the records. For example, it is most important that the initial weights in the cowshed should be correct "to the nearest ¼ lb." Even so, these figures when added (or multiplied and added) give a total that is only accurate to within about 50 lb. either way. Thus it is just stupid to include fractions of a pound in published lactation yields.

Bring some life and purpose into recording by adopting a simple plan to make full use of lactation records, first in a table showing the performance of each cow, second for herd comparisons, and third to give as much prominence to progeny records of sires as is now given to production records of dams. The procedure might be as follows: a double form, one page ruled for tabulating completed lactation yields, the other for progeny records. At each visit of the recorder each completed lactation yield would be entered (*a*) in the appropriate column of the first page as a first calf, a second calf, or a third or subsequent calf lactation and (*b*) in the appropriate column on the other attached page under the name of the sire of the animal that has just completed her lactation. Thus, after each visit of the recorder the farmer would have in front of him a growing list of lactation yields as they are completed in the current Milk Recording year and a similar picture of the lactation yields of the daughters of his present or former herd sires. This latter picture should be an accumulative one, the records of daughters of former sires being brought forward from the last Annual Register to the Register in current use. Pride of place in annual reports of milk record branches would then be reserved for two sets of figures, namely, average lactation yields (and butter fats) of the various herds and for the progeny records of most, if not all, of the bulls used in the area. Thereafter excuses for failure to publish progeny records could no longer be entertained.

Selecting Sires

The following three customary ways of selecting dairy sires show how urgent are the reforms suggested above:—

(*a*) Pedigree sale catalogues give selected milk records of dams, grand-dams and distant female ancestry, but no progeny records of sires. On the average the bulls at these sales are purchased on a basis (in respect of milk and progeny records of parents and grand-parents) of about 33 per cent. information and 66 per cent. gamble.

(*b*) Purchase a bull out of a recorded cow and by a sire whose dam was recorded. This, in fact, is the basis for licensing dairy bulls and is quite sound so far as it goes. A *maximum* of 40 per cent. information about parents and grand-parents is obtained and 60 per cent. is unknown or not divulged.

(*c*) An old-fashioned method requires neither records nor a long purse. Select a bull-calf out of a cow that has been personally inspected. If she is the type of animal wanted in a herd; if she has a good-wearing udder, well-placed teats of the right size, good legs and feet, a broad muzzle and great capacity for digestion and calf-bearing; if she milks freely, fills the luggie and stands in a herd of good-related cows, that calf may be taken home to rear with as much confidence as under methods (*a*) and (*b*).

For truly constructive breeding, however, data like the following should be available for sires (if old enough) and grand sires, and for dams and grand-dams:—

Any Sire with Daughters in milk.			Date of birth 7.5.39
(1)	1 c. 18—7,432	3·8%	
	2 c. 9—8,684	3·7%	

(1) The first calf (1 c.) lactations of 18 daughters average 7,432 lb. (all lactations in 315 or less days), the average butter fat being 3·8 per cent.

Any Dam			Date of birth 8.11.38
(2)	1 c. 10. 9.41	6,745 (301), 3·4% x	
	2 c. 7.10.42	10,481 (315), 3·3% xx	11,011 (350)
	3 c. 4.10.43	8,268 (290), 3·6% x	
	4 c 8. 9.44	8,913 (285), 3·7% x	
	5 c. 12.12.45		

(2) 1 c. is for first calf; date of calving follows, then lactation yield in lbs. followed by number of days in lactation and per cent. butter fat; x indicates twice daily milking, xx thrice daily milking.

(*xiii*) *Progeny records of Sires are as indispensable as milk records of dams in an extended milk pedigree.*

(*xiv*) *Progress in the constructive breeding of dairy cows will be gravely hindered unless breeders, breed societies, auctioneers and the Milk Marketing Board co-operate in obtaining and publishing, without omissions or selection, the milk and progeny records of the near ancestry of breeding animals for sale.*

Short Life of the Cow

There is evidence that, on the average, the milking life of our cows does not exceed about three lactations. Energetic steps to control bovine diseases together with a policy of "culling to breed" instead of perpetually "breeding to cull" should add a further three lactations to the current average. Then, and then only, will it be possible to avoid many forced sales of young cows: will it be possible to select the best cows to mate with selected bulls: will surplus stock be available from dual-purpose dairy herds to provide large numbers of good stores for fattening on leys or in yards. Note also that *healthy* commercial herds could be self-contained even if Aberdeen Angus or Hereford bulls were used every third or fourth year.

(*xv*) *Low standards of health, management and breeding result in a short life for the dairy cow which further aggravates a vicious circle (see xvii below).*

(*xvi*) *Our dairy herds must produce both clean milk and high quality store cattle for fattening.*

Individual Targets

First in importance is health in order to attain a high standard of management; thereafter, a combination of health and good management provides the only sure basis for successful breeding. Infection with bovine diseases places a limit on the efficiency of management. There can be little or no success if the majority of the cows in a herd are infected with garget, or if abortions are frequent or if cows melt away because of tuberculosis after first, second or third calves.

New herds should be started on the right lines either by the purchase of Attested cattle—an expensive method—or by the purchase of bulling heifers collected from small up-lying farms.

Owners of existing herds have a much more difficult task. In the bigger herds the tuberculin test may reveal up to 100 per cent. reactors; in the smaller herds or in herds that are never housed, summer or winter (except for milking), the percentage of reactors may be very small. The well-to-do in the south of England sell their herds and often start afresh with Ayrshires, a compliment to enterprise in one area. Working farmers, on the other hand, having considered the cost find it too high and reluctantly resign themselves to the apparently inevitable. But is it right that men who are keen to make progress should be prevented from doing so from lack of a scheme to provide the necessary capital? The bonus of 4d. per gallon for T.T. milk would be good security for a loan. Add a little organization for the sale of reactors and their replacement by clean stock and a real contribution would be made to the elimination of tuberculosis from many herds.

(*xvii*) *A high standard of efficiency in milk production is dependent first on healthy cows, then on good management and then on a sound breeding policy.*

(*xviii*) *The general farmer cannot eliminate tuberculosis from his herd without a loan in conjunction with an organized scheme for the disposal of reactors and their replacement by tested stock.*

(*xix*) *Eliminate tuberculosis from all dairy herds in the Eastern half of Britain in five years.*

(*xx*) *Eliminate tuberculosis from all dairy herds in the whole of Britain in 15 years.*

(*xxi*) *Treble the number of cattle tested for tuberculosis by providing each veterinary surgeon with two well trained lay testers.*

(*xxii*) *A slaughter policy for reactors is an unnecessary extravagance till more than half of the herds in the country have been tested.*

(*xxiii*) *Enlighten the public on the vigorous efforts the farming community propose to make towards increasing supplies of milk and contributing to public health.*

(*xxiv*) *Co-ordinate the activities of officials who visit, inspect, control and advise milk producers, in the interests of economy and efficiency.*

(*xxv*) *While acknowledging the world-wide reputation of some of our breeders and their herds, let us recognize that all is not well with the majority of our herds and that there is a profound need for speedy improvement, in the national interests.*

CLINICAL COMMUNICATION

Equine Castration: Two Unusual Occurrences

Mr. A. M. Macdonald, M.R.C.V.S., of Halesworth, Suffolk, adds to the recorded cases of the mating of recently gelded stallions the interesting instance of an eight-year-old Suffolk stallion that served a mare, complete with harness, six weeks after the operation: she has now given birth to a beautiful foal. The farmer was taking the mare through the field in which the gelded animal was running and there was an element of chagrin in the situation in that the mare, from which he had always wanted to breed, would never stand to a horse that was brought to the farm.

Mr. Macdonald also records that during the castration of a number of Suffolks two were found to be minus the testes. The natural conclusion was that they were cryptorchids, but on closer examination jagged scars were to be seen over the scrotal region. About a year previously two of these colts had been seen bleeding or with blood about them. As there was no really fresh blood, nothing was done about it and it was thought that it was just a scratch with barbed wire.

After rectal examination, which established the absence of testes, the animals were turned loose. He came to the conclusion that these two animals had emasculated each other. This was three years ago and none of these animals has ever shown any of the characteristics of the male and are quiet and docile at work. One of them recently died suddenly whilst at work, but he did not have a chance to make a *post-mortem* examination as the farmer had quite forgotten that he had expressed the wish to do so in due course.

ZULULAND GAME DRIVE AGAINST TSETSE

An Associated Press message from Johannesburg states that a commencement has been made in Zululand with the greatest big game hunt in history. The hunt is part of a three-pronged drive on the tsetse fly, the Ngana carrying pest which is driving settlers from some of the finest cattle ranching country in South Africa. They have already lost more than 10,000 head this year from Ngana.

Tsetse flies are more widely dispersed throughout Zululand than ever before. The South African Government have, therefore, decided to drive game back from the settlers' land until the animals are concentrated in the Hluhluwe Reserve. When that has been accomplished, a clean belt two miles wide will be cleared around the reserve.

ABSTRACTS

[Rapid Chemical Disinfection of Clean, Unwashed Skin. Gardner, A. D., & Sallon, H. J. (1946.) *Lancet.* **250.** 633-636.]

Small standard areas of skin on the left forearm, with the hairs cut or shaved off, were moistened all over with a wool swab dipped in a suspension of a non-pathogenic skin coccus. After the area was visibly dry, it was moistened uniformly all over with the disinfecting solution under test, and again allowed to dry. Directly the area had dried, or after five minutes, a swab soaked in nutrient broth was carefully rubbed all over the area, and then immediately streaked over the surface of a plate of nutrient heart-extract agar. Suitable controls were made of the mechanical action of the disinfecting swab in removing organisms from the treated area, and of the bacteriostatic action of any disinfectant that might be transferred by the broth-soaked swab to the surface of the agar. The plates were incubated for one or, if necessary, two days. The result was recorded as "virtual disinfection" if five or less colonies similar to those of the test coccus developed, and as "failure" if six or more colonies appeared.

The only solution that gave "virtual disinfection" in 15 to 20 seconds was 2 per cent. iodine in 70 per cent. alcohol. It is suggested that this is the ideal disinfectant for needle puncture, when great rapidity is essential, and that for surgical incisions also a single painting before the operation is all that is necessary. Aqueous iodine (0·5 per cent. to 2 per cent.) was not quite so uniformly successful in 1½ minutes as alcoholic iodine in 15 seconds. Ethyl alcohol alone seldom achieved "virtual disinfection" in 15 seconds, but a more prolonged action would probably disinfect even heavily contaminated skin. The addition of 1:1,000 acriflavine to alcohol did not improve, and may even have impeded, the action of alcohol. "Chloras," which appears to be the equivalent of a 10 per cent. to 12 per cent. solution of chlorine, was disappointing. Undiluted Dettol, which took five minutes to dry, failed in half the tests, and dilution made the results even worse.

Tests with *Pseudomonas pyocyanea* indicated that the detergent "Zephyran" was effective in 1½ minutes, but "CTAB" ("Cetavlon") appeared to be less effective than alcoholic iodine.

E. C.

* * * * *

[Further Tests on a Fit-producing Dog Food. Morgan, Agnes F., & Groody, Mary. (1946.) *J. Amer. vet. med. Ass.* **108.** 179-183.]

A commercial, baked cereal dog food, designated FPF, was found when tested in the authors' laboratory consistently to produce running fits in dogs (Cocker spaniels ranging in age from 15 to 79 months, majority being 45 months) within five to 19 days. In rat feeding tests, this food had a growth value very much less than the usual stock diet of this laboratory and was shown to be apparently deficient in protein since the addition of protein to the food enhanced its growth value. Rats are not subject to the convulsive seizures produced in dogs by this type of diet, and it therefore seemed possible that the decrease in growth rate of the rats and the fits in dogs produced by the food FPF might be an expression of the same dietary fault. A second baked food, designated AB, similarly tested, was found to be equal to the stock diet for the growth of young rats. A young Cocker spaniel, which had suffered an extremely severe reaction on the food FPF, was maintained in good condition and without fits on the food AB for 78 days.

The main difference between the formulae of foods FPF and AB lay in the incorporation in the latter of about 13·6 per cent. fresh animal protein previous to the baking. The wheat flour content of both foods was approximately the same, so that the symptoms produced by the food FPF in the dogs and rats could not be attributed to any excess of wheat gluten. [*Abstractor's Note.*—Certain workers have reported the production of a toxic effect, including fits, in dogs by the addition of wheat gluten to normal diets. Young dogs were found to be peculiarly susceptible to the toxic syndrome, but after the age of seven or eight months dogs did not readily manifest toxic symptoms.]

N. J. S.

Weekly Wisdom

He that knows not and knows not that he knows not—he is a fool; shun him.

He that knows not and knows that he knows not—he is good material; teach him.

He that knows and knows not that he knows—he is asleep; wake him.

But, he that knows, and knows that he knows—let him guard his prosperity.—Eastern Proverb.

THE LONDON CONGRESS, 1946

PROGRAMME

The following is the Programme of the Association's Congress, to be held at the **Royal Veterinary College, Royal College Street, London, N.W.1,** from September 22nd to September 27th (inclusive), except where otherwise stated:—

Sunday, September 22nd

2.30 p.m. to 6 p.m.: Visit to the Zoological Gardens, Regent's Park, as guests of the Central Veterinary Society. Reception at 4.30 p.m. by the President (Mr. S. F. J. Hodgman, M.R.C.V.S.) and Mrs. Hodgman in New Pavilion Cafeteria.

Monday, September 23rd

10.30 a.m.: Opening Meeting of Congress.

11.30 a.m.: Opening of Exhibition of Drugs and Surgical Instruments (including an exhibit of captured German and Italian veterinary instruments, kindly loaned by the Director-General, Army Veterinary and Remount Service).

12 noon: Council Meeting.

2 p.m.: Paper: "Advances in Veterinary Research." By Dr. W. S. Gordon, M.R.C.V.S., F.R.S.E.
Opener of discussion: Dr. H. G. Lamont, M.R.C.V.S.
Chairman: Professor J. Basil Buxton, M.A., F.R.C.V.S., D.V.H.
Recording Secretary: Professor J. McCunn, M.R.C.V.S., M.R.C.S., L.R.C.P.

8 p.m. to 1 a.m.: President's Reception and Dance (Dorchester Hotel, Park Lane, London, W.1).

Tuesday, September 24th

9.30 a.m.: Paper: "Advances in Veterinary Medicine and Surgery in Large-Animal Practice." By Mr. T. Norman Gold, M.R.C.V.S.
Opener of discussion: Mr. H. C. Swann, M.R.C.V.S.
Chairman: Professor T. Dalling, M.A., M.R.C.V.S.
Recording Secretary: Miss J. O. Joshua, M.R.C.V.S.

11.15 a.m.: Paper: "Advances in Veterinary Medicine and Surgery in Small-Animal Practice." By Mr. W. L. Weipers, M.R.C.V.S.
Openers of discussion: Mr. Gordon C. Knight, M.R.C.V.S.; Dr. R. F. Montgomerie, B.SC., F.R.C.V.S.
Chairman: Major Hamilton Kirk, M.R.C.V.S.
Recording Secretary: Mr. W. A. Pool, M.R.C.V.S.

2 p.m.: Demonstrations.

2.30 p.m.: V.V.B.F. Ladies' Guild, Annual General Meeting, 10, Red Lion Square, W.C.1, 2.30 p.m.

Evening: Theatre Party, arranged by Ladies' Veterinary Benevolent Guild.

Wednesday, September 25th

All day: Visit to Agricultural Research Council's Field Station, Compton, near Newbury, Berkshire.

Thursday, September 26th

10 a.m.: Papers: "War-time Achievements of the British Home Veterinary Services." (*a*) By Mr. J. N. Ritchie, B.SC., M.R.C.V.S., D.V.S.M.; (*b*) By Mr. H. W. Steele-Bodger, M.R.C.V.S.
Openers of discussion: (*a*) Mr. A. McLean, B.SC., M.R.C.V.S., D.V.H.; (*b*) Mr. L. Guy Anderson, B.V.SC., M.R.C.V.S.
Chairman: The President (Mr. G. N. Gould, M.R.C.V.S.).
Recording Secretary: The Hon. Secretary (Mr. T. L. Wright, M.R.C.V.S.).

2 p.m.: Annual General Meeting.

7.15 p.m. for 8 p.m.: Dinner (Grosvenor House, Park Lane, W.1).

Friday, September 27th

10 a.m.: Closing Meeting.

11 a.m.: Council Meeting.

11.30 a.m.: Visit to works and laboratories of Pharmaceutical Specialities (May & Baker, Ltd.), at Dagenham, Essex.

QUESTIONS IN PARLIAMENT

Vivisection (Inspectors)

Mr. Challen asked the Secretary of State for the Home Department for what reason he has decided that a medical qualification is more necessary than a veterinary one for his inspectors operating under the Cruelty to Animals Acts, in view of the fact that the welfare and condition of the animals involved are just as much a part of their responsibility as the requirements of medical research.

Mr. Ede: I have two main duties under the Act. One is to see that places where experiments are performed are properly inspected, and medical men are well able to do this. The other is to decide whether authority should be given for proposed experiments and, as the vast majority of the experiments are for the purpose of alleviating human suffering, an inspector without medical qualifications would rarely be in a position to give me the advice I require in this connection.

. . . . .

Town Planning (Animal Clinics)

Mr. Janner asked the Minister of Town and Country Planning if he will take steps to ensure that in all suitable cases arrangements are made in town planning schemes to provide for the suitable siting of animal clinics.

Mr. Silkin: I hope to issue a planning manual which, *inter alia*, will give advice to local planning authorities on the siting of such types of special development as my hon. Friend has in mind.

. . . . .

Animal Feeding-stuffs

Mr. Renton asked the Minister of Food what arrangements he has made or will make in the immediate future for the purchase of animal feeding-stuffs with the aid of the loan from the U.S.A.

Dr. Edith Summerskill: The purchase of feeding-stuffs is a question of supplies rather than dollars and there is little prospect of additional supplies while the food shortage lasts. My right hon. Friend will not lose any opportunity to purchase whatever supplies are available.

Penicillin (Producers)

Mr. J. Lewis asked the Minister of Supply (1) the price at which penicillin is supplied by the manufacturers; and if any price agreement exists between them;

(2) which firms are engaged on the manufacture of penicillin in this country; and the output of each concern during the months of May and June.

Mr. Leonard: Glaxo Laboratories Limited, operating commercially, and Distillers Company Limited, operating a Government factory as agents for the Ministry of Supply, are the main producers of penicillin in this country. Production on a smaller scale is undertaken by Boots Limited, Imperial Chemical Industries Limited, and Kemball Bishop and Company. The great bulk of the output of these concerns is purchased by the Ministry of Supply and it would be contrary to established practice to disclose details of the contracts. There is no price agreement among the manufacturers.

Mr. J. Lewis asked the Minister of Supply what restrictions there now are on firms not previously engaged in the production of penicillin who now wish to do so.

Mr. Leonard: None, Sir; other than the normal requirement of compliance with the Therapeutic Substances Act if the penicillin is to be used for injection.

. . . . .

Streptomycin

Mr. T. J. Brooks asked the Minister of Health in view of the serious incidence of new cases of tuberculosis and the high death rate associated with this disease, what steps are being taken to import supplies of the drug streptomycin from the U.S.A.; and what efforts are being made for its manufacture in this country.

Mr. Bevan: I am informed that American production of streptomycin is too small to permit export to this country. Arrangements are being made with the Ministry of Supply and the Medical Research Council to set on foot the manufacture in Great Britain of sufficient streptomycin for adequate clinical trials.

Mr. Brooks: Is my right hon. Friend aware that the person who inspired this Question is already suffering in a sanatorium, and is very anxious to get this treatment?

Mr. Bevan: I am very anxious that before this drug is adopted it shall be clinically tried out, and that all that is claimed for it shall be established. That is now being done.

Dr. Morgan: Will the Minister see that the testing of this excellent drug is done in a more widespread manner than is usually available within the offices of the Medical Research Council?

Mr. Bevan: I think that the Medical Research Council are perfectly competent to carry out these trials.

Dr. Morgan: Are they?

Mr. Bevan: I think they are. They have established their reputation. A considerable clinical test is being carried out, and it is surely rather premature to describe a drug as excellent before it has been clinically tested.

Dr. Morgan: It has been tested in America.

Dr. Stephen Taylor: Can my right hon. Friend say whether the American manufacturing firm concerned has revealed the method of manufacture, or have we to work that out ourselves?

Mr. Bevan: I cannot answer that at the moment. If my hon. Friend will put down a question. I will see what I can do to answer it.

CREATING CONFIDENCE IN MILK

Speaking at a meeting of the Welsh Section of the Society of Dairy Technology at the University College, Bangor, Dr. Provan, Chief Chemist of the M.M.B., pointed out (reports *The Farmer and Stock-Breeder*) that when considering milk quality there is a tendency to think of it from one particular point of view, and that the veterinarian tended to consider only disease, the bacteriologist hygiene, and the chemist composition, whereas milk quality must take all of these into account.

The main aim was to obtain the confidence of the consumer in the product, and unless milk was safe, had a good appearance, *i.e.*, cream line and colour, and a satisfactory keeping quality, that confidence would not be obtained. He declared that there had in the past been a tendency to sacrifice quality for quantity, whereas in the future, if milk is to maintain its position as priority No. 1, it will be necessary to combine both.

Probably the greatest incentive to improvement in compositional quality was through milk recording, and recent experiences showed that milk producers were becoming more and more quality-conscious. This was shown by the number of samples examined, which had risen from approximately 300,000 in 1943 to an estimated 2,000,000 in 1946.

There was, however, still a considerable amount of work to be done if the whole of our milk supply was to be raised to a standard of quality which would give complete confidence to the consumer.

NOTES AND NEWS

Diary of Events

Aug. 22nd.—**Meeting of Council, N.V.M.A.,** at the Holborn Restaurant, Kingsway, W.C.2, 11 a.m.

Aug. 31st.—Meeting of the Society of Women Veterinary Surgeons at Chester (Queen Hotel), 2.30 p.m.

Sept. 2nd.—Meeting of the Farmers' Club, Royal Empire Society, W.C.1, 2.30 p.m. (Mr. J. R. Warburton: "A Survey of 25 Years' Power Farming").

Sept. 22nd-27th inclusive.—Annual Meeting and Conference of the National Veterinary Medical Association of Great Britain and Ireland, to be held in London.

* * * * *

Annual Congress, N.V.M.A.

In our last issue a ticket sheet for use in connection with the Congress was distributed to members. They are asked to return this to the General Secretary when completed, not later than September 1st.

* * * * *

Colonial and Dominions Delegates Entertained

A number of the representatives of the British Dominions and Empire Territories who are in this country for the Royal Society's Science Conference and the British "Official" Science Conference were present at the joint meeting of the Section of Comparative Medicine (Royal Society of Medicine) and the Central Veterinary Society, held at 1, Wimpole Street, W.1, on Wednesday, July 31st. Following the meeting, at which Dr. P. J. du Toit, Director of Veterinary Services, South Africa, showed a sound and colour film, "Digestion in the Ruminant," Mr. Geo. N. Gould, President, N.V.M.A., had the pleasure of entertaining these distinguished visitors from overseas at dinner at the Café Royal. Unfortunately a previous engagement prevented Dr. du Toit's attendance. The guests included Dr. L. B. Bull, Chief of the Division of Animal Health and Nutrition, Council for Scientific and Industrial Research, Commonwealth of Australia; Dr. Grahame Edgar, Secretary of the Australian Veterinary Association; Mr. R. Daubney, East African Central Veterinary Research Institute, Kabete, Kenya, and Mr. H. V. M. Metivier, Deputy Director of Agriculture, Trinidad, together with Dr. W. R. Wooldridge (Chairman, N.V.M.A. Overseas Committee), Mr. W. A. Pool (President, Section of Comparative Medicine, Royal Society of Medicine), Professor T. Dalling (Weybridge), Professor A. N. Worden (Aberystwyth) and Mr. John Francis (Wilmslow, Cheshire).

* * * * *

Invitation from Denmark

It will be remembered that a short while ago a notice was published announcing an invitation from the Association of Danish Veterinary Surgeons to the children of members of the profession here. These children were asked to spend a holiday in Denmark in the homes of Danish Veterinary Surgeons, and all arrangements have now been made by the Association and by our sister body in Denmark.

A party of some 26 children accompanied by seven adults sailed for the Esbjerg on Thursday, August 8th. Each child was going to stay with a different veterinary surgeon over there, with the exception of one or two younger brothers and sisters who were to stay in the same home.

The President (Mr. G. N. Gould), Mr. Knight and Miss Smith saw the party off safely from Harwich, and they were to be met at Esbjerg by Dr. Plum, President of the Association there. In his final letter, Dr. Plum stated that he and his wife were looking forward to meeting the children, and "hoped he would serve them well."

We all trust that they will have a very pleasant holiday, and are sure that their Danish hosts will do everything they can to make the children happy during their stay.

* * * * *

VETERINARY EDUCATIONAL TRUST

Professor Miller's Appointment as Director of Equine Disease Research Station

Major Durham Matthews, Chairman of the Bloodstock Industry Committee of the Veterinary Educational Trust and a member of the Jockey Club, having offered Lanwades Park and lands at Newmarket to the Trust, following the gift of Balaton Lodge by Lady Yule, the Trust can now proceed with the establishment of an equine research station at Newmarket.

The Trust has appointed Professor William C. Miller, M.R.C.V.S., F.R.S.E., to be the first Director of the station. Professor Miller, who has occupied the Courtauld Chair of Animal Husbandry and Veterinary Hygiene at the Royal Veterinary College since 1934, and who is the immediate Past-President of the N.V.M.A., is widely known for his work in the field of animal genetics and nutrition. Last year, on behalf of the Colonial Office, he made a survey of the conditions of breeding, feeding and management of livestock in the West Indies and in the British Dependencies in the Caribbean area, reporting upon measures to effect improvement in conditions of the livestock industry in the various Crown Colonies. Professor Miller's translation to Newmarket will be a great loss to the Royal Veterinary College but of immense value to the scheme of research in equine diseases now getting under way.

It is also announced that the British Oil and Cake Mills have agreed to contribute £500 annually for a number of years in order that the Trust may establish a Fellowship in Animal Nutrition.

Further references to these developments will be made in our next issue.

. . . . .

Evans 4th Year Studentships

The Veterinary Educational Trust announces that the following have been awarded the Evans 4th Year Studentships:—

Royal Veterinary College (London): Mr. J. E. Gray.
Royal (Dick) Veterinary College: Mr. J. C. Wilson.
Glasgow Veterinary College: Mr. David McCracken.
Liverpool Veterinary School: Mr. J. R. Holmes.
Veterinary College of Ireland: Mr. W. J. Prendergast.

. . . . .

Latest gifts to the Veterinary Educational Trust include 250 gns. from the Royal Counties Agricultural Society and £50 from the committee of the Royal Windsor Horse Show Club.

The additional sixpence charged for race cards at the Bibury Club meeting in July produced £406 0s. 6d. for the Bloodstock Industry Fund of the Trust. The Hurst Park executive have promised to adopt a similar course at their meeting on October 5th.

* * * * *

PERSONAL

Births.—Richards.—On July 16th, 1946, to Nance, wife of R. A. Richards, B.V.Sc., M.R.C.V.S., Caernarvon—a son (Hugh).

Scott.—On July 29th, 1946, to Morven (*née* Robertson), the wife of W. A. C. Scott, M.R.C.V.S., "Danebury," 31, Approach Road, Margate, Kent, a son—John Robertson.

. . . . . .

Marriages.—Startup—White.—On Friday, August 9th, 1946, at Holy Trinity Church, Twickenham, F. Geoffrey Startup, M.R.C.V.S., of Bromley, Kent, to Christine M. White, of Twickenham, Middlesex.

Temple—Lancelot.—On July 31st, 1946, at St. Michael and All Angels, Mill Hill, Captain Ronald Richard Temple, R.A.V.C., to Mary d'Egville Lancelot, of Mill Hill.

* * * * *

R.C.V.S. OBITUARY

Anderson, William Henry, Major, R.A.V.C. (T.F.) (retd.), Rochester House, Uxbridge, Middlesex. Graduated London, July 13th, 1898. Died July 25th, 1946; aged 70 years.

Major W. H. Anderson, M.R.C.V.S.

Major William Henry Anderson, whose death we record with much regret, was the elder son of the late Major Anderson, of North Bank, Folkestone Road, Dover. After qualifying from the London College he joined the late Mr. W. A. Hancock, of Uxbridge, first as assistant and later as partner and had practised in the Uxbridge district for over 40 years. He served in the R.A.V.C. in the first Great War and was in the Middle East until the end of the campaign. After the war he joined the 2nd London Division T.A. and retired with the rank of Major.

A colleague writes of him: "In spite of the calls of a very busy professional life Anderson found time to take a part in the social activities of the district and it may be said with truth that he was one of the most popular and best loved men in Uxbridge. One had only to walk down the main street of that town with him to appreciate the high regard in which his fellow citizens held him. A good singer, he was prominent in local musical circles, a member of the St. Margaret's Church Choir, the Choral Society and the Male Voice Choir. His services as M.C. were also in great demand at dances, whist drives and other social and charitable affairs. He was a keen Freemason and had held every office in his Lodge: at the time of his death he held office as Almoner.

"Anderson was a small, rotund, jovial man of a kindly personality and great courage—which he showed to a marked degree in his illness, for he had been confined to his house since January. His passing will be regretted by many people both within and without the profession."

GENERAL OBITUARY

On August 7th, 1946, at his home, 117, Goddard Avenue, Swindon, Wilts, Graham Hodges; aged 59.

* * * * *

PENICILLIN FOR VETERINARY USE

At the meeting of the Council of the Pharmaceutical Society held at the end of July, the Secretary reported that notice had been received from the Ministry of Supply setting forth the arrangements by which veterinary surgeons would be able to obtain penicillin for the treatment of bovine mastitis. The proposal was that a veterinary surgeon should nominate the source from which he wished to obtain supplies of penicillin, and a permit for that purpose would then be issued, on approval, to the nominee. It was not intended, as at one time seemed likely, that veterinary surgeons should be in direct touch with manufacturers or wholesalers, and in fact about 40 applications for the new licences had been made up to now in respect of retail chemists' shops. The principle had been conceded that a retail chemist had as much right as other persons or firms to be nominated for the receipt of a licence, but the Society had gone a stage further and was urging that any chemist who applied for a licence to sell penicillin, provided he satisfied the Ministry regarding the conditions under which it was handled, should be entitled as of right to receive a licence.

* * * * *

LEGAL NOTES

"Bovine Mastitis Cure"

Firm's Claim Against Farmer Fails

The Glasgow Herald of August 2nd reports that, giving judgment on the previous day against a Glasgow firm which had been unsuccessful in a claim against a Perthshire farmer for payment of £86 2s., Sheriff-substitute A. M. Prain stated in Perth Sheriff Court that he was satisfied on the evidence that the articles sold to the defender for the cure or immunization of mastitis were quite valueless, and that he was of the opinion that the farmer had actually been supplied with sugar and starch.

The firm, Homar, Ltd., 201, Bath Street, Glasgow, who were found liable in expenses to the defender, Gavin Alston, Dalcrue Farm, Almondbank, have lodged an appeal with the Court of Session.

In their petition Homar, Ltd., stated that they sold a preparation called Bovine Mastitis Cure (two types) to Alston between August and September of 1944, the total price being £86 2s. Alston had refused to pay.

In reply, Mr. Alston claimed that he had been induced to buy Bovine Mastitis Cure by misrepresentation and fraud, the goods being useless for the purpose for which they were sold and therefore worthless to him. He quoted a pamphlet which said that B.M.C. 66 was a cure for mastitis and that B.M.C. 69 gave immunization against mastitis.

On analysis, the defender stated, the products had been found to be composed of granular sucrose coated with maize starch (B.M.C. 69) and lactose (B.M.C. 66), both common in the chemical world for a long number of years. "Their administration to cows could not possibly have any influence on the prevention of mastitis, nor in mitigating or curing the disease in animals already affected," it was stated.

After stating that Alston had bought B.M.C. from them in 1942 and had made no complaint, the firm went on to say that ordinary chemical analysis, while it might reveal the constituents of the product, would not disclose the active principle. The products were homoeopathic remedies and were made up specially to their specification by one of the best-known manufacturing chemists in London. The active principle was their "secret knowledge."

Sheriff's Finding

The Sheriff-substitute found that the firm had been in breach of the implied condition that the products would cure or immunize cattle against bovine mastitis, and gave his decision in favour of Alston.

In his note, the Sheriff remarked that the value of the ingredients in one box of B.M.C. 66 was about 1d. and the value of the ingredients of one box of B.M.C. 69 about ½d. (B.M.C. 66 was sold at two guineas per box of 30 doses and B.M.C. 69 at one guinea per box of 30 doses.)

"The chairman of the company, who claimed to be the discoverer of these remedies," the Sheriff went on, "had suggested that the products included a secret component, but no representative of the London firm of chemists who were alleged to have prepared the products had been asked to go into the witness box."

* * * * *

Failure to Notify Tuberculous Bull.—At Wellington (Salop) on July 15th, reports the Wolverhampton *Express and Star*, John Morris, smallholder, Millfields, Wellington, was fined £10 with £1 14s. 9d. special costs for failing to notify the police of being in possession of a bull suffering from tuberculosis.

Sergeant McLeon said that when he saw the bull at Morris's premises it was thin and emaciated.

Mr. J. B. Bowdler, defending, said that Morris would not have bought the bull if he had suspected anything was wrong with it.

Mr. John Buckingham, veterinary inspector employed by the Ministry of Agriculture, said he had made a *post-mortem* examination of the bull and had found it to have been suffering from advanced tuberculosis.

In answer to Superintendent S. Withington, the inspector said that sometimes a farmer bought a sick bull as a speculation, hoping it would get better.

Morris said he had had no idea that the bull had tuberculosis. When it began to sink he had drenched it, but had not suspected the real cause of the trouble.

* * * * *

Fined £48 at Watlington for illegal slaughter of sheep, Mr. W. D. Hutt, Corner Lodge Farm, Towersey, claimed that the sheep got blown on clover, and he killed them to see if anything could be done with the meat, which was, however, not suitable for human consumption and was boiled for pig feed.

* * * * *

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Foot-and-Mouth Disease:

Norfolk.—Caldecote Farm, Oxborough, King's Lynn, Norfolk (Aug. 11th).

Swine Fever:

Herefordshire.—The Park, Canon Frome, Ledbury, Herefordshire (Aug. 7th).

Lincs. (*Kesteven*).—Moor Farm, Branston, Lincoln (Aug. 8th).

Lincs. (*Lindsey*).—4, Council Houses, Toynton St. Peters, Spilsby, Lincs. (Aug. 5th).

Northants.—52, Boughton, Boughton, Northampton (Aug. 9th).

* * * * *

APPOINTMENT OF FISHERIES ADVISER

Mr. A. T. A. Dobson, C.B., C.V.O., C.B.E., who recently retired from the post of Fisheries Secretary of the Ministry of Agriculture and Fisheries, has been appointed Fisheries Adviser to the Ministry on a part-time basis. In this capacity he will be available for consultation and for special duties, particularly in connection with international conferences.

* * * * *

A GLASGOW CLEAN MILK PIONEER

Commenting upon the fact that a model byre and dairy which existed in the centre of what is the present city of Glasgow receives a large paragraph of notice in the report of the Scottish Committee on Farm Buildings, *The Farming News* states that this "modern" byre of 120-130 years ago occupied the site where to-day stands the Glasgow Corporation Transport Department's headquarters offices at the corner of Bath Street and Renfield Street.

"Its owner, William Harley, started Willowbank Dairy, a name that suggested that his cow parks were located where Kelvingrove Park to-day meets with Woodlands Road. Harley ran private baths (hence the name Bath Street), and he found that his clients, after a bath, welcomed a glass of milk. Being unable to assure a supply of good milk, he set about producing such a supply. He developed a herd of 250 cows, building a byre, with a public gallery for visitors, which was a show place of the old city.

"How did he bed his cows? We wonder. Knee-deep in straw? Or on the cold comfort of concrete? Had his herd any mastitis?—Yes, there are many questions we should like to ask. At all events, Harley was a great pioneer, whose name is commemorated on a plaque inserted into the walls of Transport Department's offices for Glasgow citizens to read to-day.

"Among visitors to this byre was the heir to the Czardom of Russia who was so impressed that he invited Harley to go to Russia and set up similar byres at the Kremlin. Harley agreed, but he had many preparations to complete in London, where he died before undertaking his Royal mission."

* * * * *

Dr. N. G. Horner, editor of the *British Medical Journal* since 1928, is to retire shortly. Dr. Hugh Clegg, for many years deputy editor, will be the new editor of the journal.

Veterinary Appointments in South African High Commission Territories. (Basutoland and Bechuanaland Protectorate.)

It would appear from information received by the N.V.M.A., that the remuneration of posts in these High Commission Territories and existing conditions are far from satisfactory.

The N.V.M.A. would therefore advise any member of the profession who may be offered an appointment there to communicate with the General Secretary before coming to a decision.

* * * * *

HUMANE SLAUGHTER OF RODENTS

The Universities Federation of Animal Welfare, 284, Regent's Park Road, Finchley, N.3, has available as a leaflet the address given by its chairman, Major Hume, at the annual meeting of the Scottish S.P.C.A.

The leaflet points out that callousness towards unpopular animals, such as rats and mice, which happen to be harmful to man, is a mental weakness due to imperfect education.

It gives references to some official publications which contain valuable technical information but pay insufficient attention to humane considerations.

Rat-proofing of buildings and elimination of breeding-places are recommended as the principal deterrents for rats. Cyanide fumigation is the most effective and humane method of destruction when it can be safely used, but sulphur fumigation causes prolonged suffering to those animals which are only partly gassed. All bait poisons are cruel, but zinc phosphide appears to be the least objectionable of them. UFAW is embarking upon an investigation directed towards the development of a humane bait poison. The importance of pre-baiting is stressed. Viruses are inefficient and inhumane, as also are varnish or rat-lime traps. Gin traps, with steel jaws which crush the limbs, are almost invariably cruel, but breakback traps, if carefully set, stand a good chance of killing outright. Ferreting with terrier or gun and killing with sticks during threshing are rough but quick methods.

The public is urged to make use of the rodent operatives employed by Local Authorities and County Agricultural Committees, but to insist on their aiming at a high standard of humaneness.

* * * * *

PROPRIETARY MEDICINE ADVERTISING

"Over the week-end," observes the *Pharmaceutical Journal* of August 3rd, "journals which circulate among advertisers gave publicity to a new code of standards for proprietary medicine advertising which has been prepared on the instructions of the Advertising Association. The code has been circulated to a number of bodies for their approval and to the representatives of the makers of proprietary medicines, the Proprietary Association of Great Britain. It is perhaps not generally known that the Advertising Association has over many years achieved a large measure of success in controlling certain undesirable aspects of proprietary medicine advertising; but in the light of modern medical knowledge and a more informed outlook by members of the public towards this advertising it was thought appropriate to redraft, revise, and enlarge the existing code to meet more closely the current situation. With this end in view, and basing its recommendations on the principle that 'the advertising of medicines should be viewed differently from the advertising of other goods,' and that 'the personal harm that may result from exaggerated, misleading, or unwarranted claims justify the adoption of a very high standard' of advertising, a sub-committee of the Advertisement Investigation Department of the Association has not only prepared a new code, but has put forward the recommendation that this code be kept under regular review and revised as a whole at least once a year. At present the contents of the code are to be treated confidentially; they will be released for publication when the views of the various interested bodies have been ascertained. Meanwhile it is gratifying to see that the question of proprietary medicine advertising is being tackled vigorously by the interests which financially are most closely affected, and, we can assure our readers, the interests of the ultimate purchaser of proprietary medicines, ailing members of the general public, have by no means been overlooked."

* * * * *

The City of Manchester Markets Department have issued an interesting brochure to mark the centenary of municipal administration of the City's markets.

Mr. John Pringle, Deputy Editor of *The Listener*, has been appointed Press Officer to the British Medical Association. Mr. Pringle was formerly responsible for "The World Goes By" broadcast feature, and was a member of the editorial staff of *The Manchester Guardian*.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

Notice to Correspondents

The Editorial Committee regrets that, the paper supply situation having deteriorated, it has become necessary to ask correspondents again to accept a limitation on the length of letters submitted for publication. Accordingly, contributors to our Correspondence Columns are requested to note that, until further intimation is made, their communications must not exceed 350 words.

* * * * *

SMALL-ANIMAL EUTHANASIA BY INTRA-MEDULLARY INJECTION

Sir,—Recently, looking through *The Veterinary Record* for 1943, I was interested to find among the Abstracts (**55**. 76) a report from America on the value of intra-medullary injections of ether or chloroform for the humane destruction of dogs (Gorman, R. J. (1942.) *Vet. Med.* **77**. 303).

This led to correspondence in your columns. Mr. A. J. Baxter wrote (1943, p. 134) that he had adopted the method a few years ago, but while acknowledging its humaneness he had "not found it quite such plain sailing as it might seem" and had, therefore, largely given it up. This stimulated Mr. F. B. Hardy and Mr. J. Story to write jointly (1943, p. 154) that they had been using the method in the daily routine of their practice for some six years, after a recommendation by Mr. Townson, and were struck by the ease and efficacy of the method.

In 1943 I was with the Forces and did not notice either the abstract or this correspondence. May I, therefore, be pardoned for mentioning at so late a juncture that this method of euthanasia was recommended and described by me, with details of its procedure, in *The Veterinary Record* for 1934 (**14**. 206), having first developed it in 1930.

Since this time I have continued to find it of the same value, including on several of those exacting occasions when one destroys the animal in the presence of its critically anxious owner. It has proved itself a humane, dependable, and sometimes invaluable recourse in difficult circumstances with other species. In the recumbent horse it is incomparably superior to aortic section *per rectum*, or other expedient known to me.

Nembutal, the humane killer, competent electrocution and the above technique are all available to-day for the destruction of small animals. May I, therefore, protest that any veterinary surgeons in this country should continue to use prussic acid and/or strychnine for this purpose, since these are practices that have been condemned by a majority of the profession for more than a decade, and could very properly become prohibited by law.

Yours faithfully,

E. O. Longley.

Streatley, Berks.
August 5th, 1946.

* * * * *

HEAD SHAKING IN HORSES

Sir,—With reference to the above condition to which Mr. J. W. H. Holmes drew attention at the meeting of the Royal Counties Division, N.V.M.A., on April 10th last, and published in this week's issue of *The Veterinary Record*, in some cases this can be stopped by wiping out the false nostril with a piece of gauze or cotton wool, that has been moistened with a little surgical, or methylated, spirit.

Chronic cases are in all probability due to a form of trigeminal neuralgia, judging by the excellent results that follow infra-orbital neurectomy. This operation, which is fully described on pages 48 to 51 of Williams' "Surgical Operations" (revised by Danks and Frost), can be performed in either the recumbent or the standing position. Most of those who have done it, whenever possible prefer the latter, after carrying out nerve blocking. No untoward results have been reported.

Yours faithfully,

J. F. D. Tutt.

"Rothiemurchus,"
St. Cross, Winchester.
August 10th, 1946.